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Understanding the nature of variations in postgraduate learners' willingness to communicate in English

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Abstract: Willingness to communicate in a second language (L2 WTC) is a learner's volitional participation in oral communication using L2. Previous research has expended considerable attention to the stable, trait-like disposition of learners' L2 WTC, while less focus has been accorded to the complex nature of variations in L2 WTC on multiple timescales. Using dynamic systems theory, the present article examines the complex nature of variations on three timescales: during conversation, between classes and over time. The data were obtained from six postgraduate students through structured classroom observations, learners' diaries, stimulated recalls and biographic questionnaires. The findings show that while variations in L2 WTC within and between the classes were influenced by situational variables, such as interlocutors, topic and perceived opportunity, variations over 14 classes were strongly affected by enduring factors, such as personality and trait-level motivation. Introverted learners showed dependency on their interlocutors to provide them with opportunities for L2 use. Conversely, extraverted learners proactively exploited

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PUBLIC INTEREST STATEMENT

Willingness to communicate (WTC) is students' proactive participation in oral communication using a second or foreign language in a given situation. It has been observed that sometimes students' are highly willing to use L2, while at other times they are less willing to do so. Thus, in order to better understand why this happens, this present study examined variations in advanced level business students' L2 WTC on different timescales, including moment-to-moment, between the classes and over long time. Results showed that fluctuations in learners' L2 WTC on timescales, including moment-to-moment and between the classes, were mainly determined by situational, state-like variables, including topic, teacher, interactional context, state-like motivation and anxiety, while their L2 WTC over a long time was affected by variables, such as personality and trait-like motivation. The study offers language teachers and teacher educators' important insights into the complex nature of L2 WTC.

opportunities to use L2 regardless of the nature of topic of discussion and the behaviour of interlocutors. The study also discusses a number of implications for language teaching and teacher education.

Subjects: Teaching & Learning; Bilingualism/ESL; Teachers & Teacher Education

Keywords: Willingness to communicate; second language learning; dynamic systems theory; attractor states; teacher education

1. Introduction

The concept of willingness to communicate in a second language (L2 WTC) refers to the learner's readiness to speak in a second language when free to do so and has been increasingly shown to correlate with learners' language fluency and proficiency as well as their communication skills (Derwing, Munro, & Thomson, 2008). It is not surprising then that the concept has received considerable attention in second language research in recent years. MacIntyre, Clement, Dornyei and Noels (1998) pyramid model has been the most influential framework that has inspired research into L2 WTC over last two decades. The model presents the influence of trait-like and state-like variables on L2 WTC. While the state-like variables, including self-confidence and desire to communicate with a specific person/group at a specific time, exert an immediate influence on L2 WTC, the trait-like variables, such as interpersonal motivation and intergroup motivation, intergroup attitudes, social situation, communicative competence, intergroup climate and personality, exert an indirect, distal influence on L2 WTC.

Much of the subsequent research inspired by the model has been characterised by studies focusing on the trait-like and stable features of learners' L2 WTC. However, recently, studies adopting this model have been criticised for their overwhelming use of quantitative measures designed specifically to examine the influence of underlying variables, mainly perceived communicative competence, communication apprehension and motivation in ESL contexts. Notwithstanding the significant contributions of these studies, we still lack a more comprehensive and elaborate theoretical perspective which not only allows a holistic understanding of the complex and dynamic nature of learners' L2 WTC.

A recently developed dynamic systems theory (DST) is suggested to provide such an understanding (De Bot, Lowie, & Verspoor, 2007; Dornyei, MacIntyre, & Henry, 2015). Dynamic systems are defined as a whole or form, such as an individual difference variable, an individual L2 learner or a L2 classroom, which is constantly under flux due to interaction of a complex multiplicity of underlying variables (De Bot & Larsen-Freeman, 2011). According to DST, L2 learning is a complex phenomenon which comes about as a result of a non-linear interaction of a multiplicity of interconnected underlying psychological, contextual, linguistic and physiological variables (Larsen-Freeman & Cameron, 2008). DST represents an ontological shift from previous conceptualisations in which it encompasses the complex, dynamic and non-linear interaction of variables underlying L2 WTC. Second, it integrates various dimensions of L2 learning, such as psychological and contextual, previously conceived as distal. Third, it conceives context to be a dynamic and endogenous, rather than static and exogenous, factor exerting influence on individual learner from outside (Mercer, 2016).

Thus, while DST allows a more systematic and powerful investigation of L2 WTC and has increasingly been adopted by L2 WTC researchers (MacIntyre, 2012; MacIntyre & Legatto, 2011; Mystkowska-Wiertelak, 2018), there is still a paucity of studies trying to understand L2 WTC from the DST perspective. The current study, therefore, addresses this gap by adopting the DST framework to study L2 WTC dynamics. Before we explain how we adopted this framework in our study, we will first explain the key features of the DST followed by a critical review of L2 WTC research and research questions. Next, we elaborate on the research design and present the findings of the study while also underlining contributions and shortcomings of this research.

2. Key features of the DST

The prominent features of dynamic systems include complexity, interdependence, non-linearity and attractor and repeller states (Larsen-Freeman, 2015). The attributes of complexity and interdependence indicate that variations in dynamic systems do not come about as a result of independent, isolated variables but as a dynamic, non-linear interaction of a variety of variables. Interaction between variables is non-linear in that the change in a variable is not always proportional to the change in the system as a whole. For instance, sometimes a single variable, such as topic or task, can provoke dramatic change in learner's L2 WTC, while at other times a combination of facilitating factors, such as topic, motivation, perceived communicative competence fail to budge it (De Bot et al., 2007).

Moreover, dynamic systems are capable of self-organisation. This refers to the latent ability of a system to shift from one state, such as silence, to another, for example, L2 communication, and vice versa (Dornyei, 2009). However, the dynamic systems show self-organisation due to their co-adaptability, that is they constantly adapt to the atmosphere they exist in. For instance, a learner with a lack of proficiency in L2 decides to communicate as a result of encouragement by peers (Larsen-Freeman & Cameron, 2008).

The most important features of the DST are attractor and repeller states. An attractor state is defined as a stable, preferred state that a dynamic system enters as a result of interaction between facilitating or debilitating variables. It is necessary to demystify the key words, such as "preferred", "stable" and "attractors", in the definition above (Hiver, 2015, p. 25). From the DST perspective, dynamic systems do not have preferences, rather they simply move from one state to another through self-organisation. Second, stability in dynamic systems is not the same as "stasis" which refers to a complete halt in the process of development (Larsen-Freeman, 2015, p. 12). Instead, stability represents the behaviour of the system at a particular moment and the pattern of its development. Also, the term "attractors" does not imply a magnetic force attracting the system but simply refers to the "behaviour" of the dynamic system as it moves towards or away from critical patterns (Hiver, 2015, p. 25). Repeller states, on the other hand, are states wherein a system cannot stay for much time—they are temporary states wherein change is imminent (Hiver, 2015). Moreover, the outcome of a system's settling in attractor state is not always desirable whereas that of a repeller state undesirable. The outcome can be pleasant or unpleasant depending on the "overall constellation of the system components" (Dornyei, 2014, p. 3). Thus, the concept of attractor and repeller states allows to examine the manifestations of both variations and stability on a number of timescales. Through attractor and repeller states, the DST not only explicates variability in L2 learning and use but also allows the conceptualisation of the complex character of stability in dynamic systems.

Finally, DST allows the study of language development on multiple timescales. According to DST, the complex process of language development occurs on multiple timescales, for example seconds, hours, days, weeks and months (De Bot, 2015). The timescales are mutually interacting in the sense that development on every timescale is determined by the developments that occurred on the previous timescales. DST makes a distinction between timescales and time window. De Bot (2015) writes, "timescale refers to the granularity of the developmental process.... [While] time window represents the period of time studied" (p. 31). For instance, if we examine changes in a learner's L2 WTC in a 1-h class, the 1 h represents the time window, while the minutes and seconds represent the timescales. Since the timescales are interacting, changes in learner's L2 WTC in that 1-h class would depend on the second-by-second and minute-by-minute changes within that 1 h. The concept of timescales is an important concept that makes the complex and dynamic nature of learners' L2 WTC comprehensible.

3. Research on variations in L2 WTC

Studies on learners' WTC have been mainly characterised by their strong focus on socio-psychological variables in a number of immersion and non-immersion, and English as second/foreign language (ES/FL) contexts (Dornyei & Ryan, 2015; Peng, 2014). A majority of studies have shown

that L2 WTC is directly predicted by learners' perceived communicative competence and anxiety, while it is indirectly predicted by their motivation and personality (Baker & MacIntyre, 2003; Hashimotto, 2002; Kim, 2004; MacIntyre, Baker, Clement, & Conrod, 2001; MacIntyre, Baker, Clement, & Donovan, 2002; Yashima, 2002). For example, MacIntyre et al.'s (2002) study examined the impact of variables, including motivation, perceived competence, anxiety and past learning experiences on L2 WTC of immersion and non-immersion students. The study revealed that while non-immersion students' L2 WTC was directly affected by lower perceived competence, immersion students' L2 WTC was affected by higher anxiety. Additionally, motivation and past learning experiences were not relevant to non-immersion students' WTC, whereas these variables directly affected L2 WTC of immersion students.

Most interestingly, studies in western ESL and non-western ES/FL contexts have shown discrepancies in terms of the types of motivation affecting learners' L2 WTC. For instance, while western ESL learners' L2 WTC was correlated with learners' attitudes towards L2 community (Clement, Baker, & MacIntyre, 2003; MacIntyre et al., 2001), learners' L2 WTC in non-western contexts was strongly affected by integrative motivation and international posture (IP), that is learners' desire to make intercultural friends and live in L2 country (Cetinkaya, 2005; Hashimotto, 2002; Kim, 2004; Peng, 2007; Yashima, 2002). Kim (2004), for instance, examined correlations between learners' (n = 200) L2 WTC, self-confidence, motivation and personality in a Korean context. Using questionnaires, the study found that learners' L2 WTC was directly determined by their higher perceived communicative competence and lower anxiety, and indirectly influenced directly by learners' IP, and indirectly by their to learn L2 (p. 142). In addition, personality has been found to have a strong impact on learners' L2 WTC. Studies suggest that extroverted students rendered higher oral participation compared to introverted students in the same class (Cetinkaya, 2005; Elwood, 2011; Fu, Wang, & Wang, 2012). Lately, however, attempts have been made to examine the state-like features of personality. For instance, Cao's (2009) study into factors affecting L2 learners' WTC revealed that learners' personality displayed variations due to interaction with situational variables, such as topic, interlocutors and conversational context (p. 121).

However, it has been argued that scales or batteries designed for studying WTC in such contexts have little application to other non-western ESL (e.g. Pakistan) and EFL contexts (i.e. Cao, 2009; Peng, 2014) as most of the situations covered in the batteries are not contextually relevant to the respondents, for instance, talking to a stranger or a friend in L2 while standing in cue, baking a cake following instructions in L2 (MacIntyre et al., 2001). Although this line of research using quantitative methods was multivariate in nature discussing how different variables, such as anxiety, perceived competence, motivation and personality interact, it presented a static perspective on variability in L2 WTC as the data were collected at one point in time. While concerned mainly with group averages, the cross-sectional statistical studies have shown variations in learners' L2 WTC across situations (MacIntyre & Douccette, 2010), while the statistical analyses underlying much of the nomothetic approach are not designed to address moment-to-moment variability at the individual level (MacIntyre & Legatto, 2011). Thus, notwithstanding the invaluable contributions of these studies, these studies have been limited to examining the correlations of variables.

In contrast, inspired by the sociolinguistic turn in second language acquisition (Block, 2003), L2 WTC research has recently experienced a shift from nomothetic approach towards ecological and sociocultural approaches (Cao, 2014; Suksawas, 2011). Seeking to better understand the nature of change and interaction of variables underlying L2 WTC, these studies have employed qualitative and mixed-method tools, for example observations, learner diaries and interviews (Cao, 2014; Pattapong, 2010; Peng, 2014), and have made significant advances towards a dynamic perspective on L2 WTC. For example, this line of research has shown that contextual variables, including topic, task type, familiarity with interlocutor (Mystkowska-Wiertelak, 2018; Peng, 2014), psychological variables, such as motivation, personality, perceived opportunity (Cao, 2009; Shimoyama, 2013), and linguistic (MacIntyre & Legatto, 2011) and other potential

factors, are responsible for co-constructing L2 WTC (Kang, 2005, p. 291) and that the variables work interdependently and interact in a non-linear manner to determine L2 WTC. In other words, sometimes change in a variable may exert dramatic influence on learners' L2 WTC, while sometimes even a combination of variables does not exert any oral response from learners. Importantly, due to non-linear interaction, variables seem to differ in strength at different moments (Cao, 2014, p. 808).

Most notably, these studies have also attempted to map variations in L2 WTC on both macro-level, that is months and weeks, and micro-level, that is minutes, seconds and within second (MacIntyre & Legatto, 2011; Peng, 2014). For example, MacIntyre and Legatto (2011) examined variations in L2 WTC on multiple timescales in a laboratory context. The study adopted questionnaires to examine learners' (n = 6) trait-like WTC, anxiety and extraversion. Most importantly, the study adopted an idiodynamic method involving eight oral tasks, students' self-ratings and stimulated recalls to examine variations in learners' L2 WTC. The study revealed that learners' L2 WTC was subject to variations on multiple timescales, such as per-second, per-hour, months and years due to a number of factors, including searching memory for vocabulary and anxiety. The study also showed that variations were affected by variables, including searching for vocabulary, anxiety, perceived communicative competence and personality. Moreover, variations over a larger timescale were influenced by the nature of variations on smaller timescales, seconds, tasks and hours. Inspired by MacIntyre and Legatto (2011), a number of other studies have examined variations in L2 WTC on various timescales, such as within a class and over weeks (Peng, 2014), and minute-by-minute (Peng, 2014; Shimoyama, 2013). It is, however, worrying that only a handful of recent qualitative studies have examined the nature of variations in L2 WTC than it has been shown by previous research.

4. The study aims

Studies using socio-cognitive and ecological approaches have shared important insights into variability in L2 WTC. However, while greater attention has been accorded to nomothetic features aimed at generalisation of findings, only a few studies have adopted DST approach to comprehend idiographic features of variations in individual learners' L2 WTC on multiple timescales in other ES/FL contexts. Most notably, while previous studies have examined learners attending courses specifically designed for L2 learning, there is need for studies in other content-oriented classrooms wherein students' primary focus is on the content rather than L2 per se. It will be interesting to examine how variations in advanced learners' L2 WTC occur on different timescales including within conversation, between two sessions of the same class and over time. Specifically, the study seeks to shed light on the nature of variations due to interaction of underlying variables in postgraduate business students' WTC in a content-based course, business communication (BC) in a university classroom in Pakistan.

4.1. Research question

The present study aims to answer the following research question:

(1) How does postgraduate business students' L2 WTC manifest variations within conversation, during two consecutive sessions of the class, and over time?

This question is divided into three sub-questions:

(i) How does postgraduate business students' L2 WTC manifest variations within conversation?

(ii) How does postgraduate business students' L2 WTC manifest variations between two consecutive classes?

(iii) How does postgraduate business students' L2 WTC manifest variations over nine weeks in a university classroom in Pakistan?

5. Methodology

5.1. Context

The context of the study was a BC module attended by MBA students (n = 40) in their second semester in a public sector university in Pakistan. The module was aimed at educating students about the principles and practices of BC preparing them for written and spoken communication at workplace. The class consisted of 45 students between the age of 20 and 23 years. The course was taught by a regular teacher except for one class that was engaged by a substitute teacher. While the regular teacher conducted 13 of the 14 observed classes, one of the classes (4th observed class) was conducted by a substitute teacher. While English was the official medium of instruction, communication between teacher and students was characterised significantly by code switching, involving English, Urdu and Sindhi. Sindhi was the mother tongue of the majority of students, while a small number of students from different regions of the country spoke Siraiki, Punjabi, Pushto and Burushski as their mother tongue. The class met every Friday and Saturday for nine weeks. Each class consisted of two sessions and each session lasted 60 min.

5.2. Participants

Since the current study aimed to examine variations in postgraduate business students' L2 WTC, six (n = 6) postgraduate students studying BC were selected for the study using purposive sampling. Moreover, it was also feasible to fill out the observation sheets of at least 6 students in a class of more than 40 students. The 6 participants included 3 females and 3 males aged between 21 and 23 years. Participants' English language learning experience ranged between 10 and 15 years. Table 1 illustrates participants' biographic information. (Note: For ethical reasons, participants' real names have been replaced with pseudonyms in the table).

Meenoo and Arham had been learning English for 10 years, while Eshaal, Abeeha, Sherry and Nawaz claimed to have been learning English for 15 years. According to participants, their contact with English was mainly inside the classroom, whereas they used very little English outside the classroom. Belonging to humble financial backgrounds, the participants' studies at the university were supported by scholarships and government's fees reimbursement programmes.

5.3. Data collection

5.3.1. Structured classroom observations

The study employed a multiple case mixed methods approach to obtain an in-depth understanding of variations in postgraduate business students' L2 WTC in a classroom context (Merriam, 1988). The data for the current study were collected during a doctoral research project between January and April 2014 (Author, 2016). In order to examine fluctuations in participants' L2 WTC, non-participant classroom observations of students' communicational behaviour were conducted in the BC class using a structured observation scheme for over nine weeks (Dornyei, 2007; MacKay & Gass, 2005). Participants were observed and video-recorded in two classes (4 h) twice a week.

Table 1. Biographic information of participants

Participants	Age	Gender	L1	L2 learning experience
Meenoo	22	Female	Sindhi	10 years
Eshaal	21	Female	Sindhi	15–16 years
Abeeha	23	Female	Sindhi	15–16 years
Sherry	23	Male	Sindhi	15 years
Nawaz	21	Male	Sindhi	11–15 years
Arham	22	Male	Sindhi	10 years

Each classroom session comprises two 1-h sessions, that is session-1 (60 min) and session-2 (60 min). Observations in each session were recorded using separate observation sheets consisting 12 time-intervals (i.e. 5, 10, 15, 20,..., 60 min).

The observation scheme used in the current study was adapted from Cao's (2009) study. Cao's (2009) scheme was piloted and used after necessary modifications to suit the context of the study. For instance, given the peculiarity of the context, some of the categories were incorporated from Cao's (2009) scheme for observing group/pair work, while others were omitted. For example, the two categories, such as present to and respond to an opinion, were included in the current scheme as these events were frequently observed to be part of the teacher-fronted interaction in the current study. Some of the categories, such as try out a difficult (syntactical, morphological and lexical) form in L2 and guess the meaning of an unknown word, were excluded from the scheme due to the fact that they involved a subjective decision on the part of the observer. That is, it was difficult for the observer to decide during the class observation whether a participant used a word or structure they did not know previously. Observations were non-participant and video-recorded in order for them to be used as a stimulus for the stimulated recalls.

Participants' L2 communication was marked under the following six categories, including volunteering an answer/comment or hand raising, hand-raising is considered to be an indication of student's readiness to communicate (Bernales, 2016; Cao, 2009; MacIntyre et al., 1998) asking question/for clarification, present/respond to an opinion, participate in activities involving L2 use, talking to neighbour and private speech (Author, 2016; Cao, 2009). Table 2 presents a detailed description of the categories.

Furthermore, each observation sheet recorded 60-min class session and was distributed on a timescale including 5-min intervals. Instances of participants' L2 use, including hand-raising, were recorded for 2 h using separate observation sheets for each session. The timescale allowed us to trace variations and stability in participants' L2 WTC between 2 sessions of the same class and over 14 classes. Observations were non-participant and video-recorded in order for them to be used as a stimulus for the stimulated recalls.

5.3.2. Stimulated recall interviews

Stimulated recall interviews (SRIs) helped to triangulate and corroborate the data from observations. First and foremost, SRIs allowed, (1) they served as an instrument for examining during conversation the ebbs and flows in participants' L2 WTC. (2) A detailed and thorough examination and exploration of factors and their interrelation. Three rounds of SRIs were conducted with each

Table 2. WTC categories

Categories	Descriptions
(1) Volunteer an answer/a comment (hand-raising included)	A student answers a question raised by the teacher to the whole class A student volunteers a comment
(2) Ask the teacher a question/clarification	A student asks the teacher a question or for clarification
(3) Present own opinion in the class/respond to an opinion	A student voices his view to the class or his group
(4) Volunteer to participate in class activities	A student takes part in an activity
(5) Talk to neighbour	A student talks to another group member or a student from another group as part of a lesson or as informal socialising
(6) Private speech	A student's verbalisation/muttering in response to a question addressed to another student or group

participant separately during the study. The average length of each interview in the first two rounds was around 70 min, while the last round of interviews was not more than 35 min in length (Gass & Mackey, 2000).

Video-recordings served as a strong stimulus for eliciting participants' recalls (Dornyei, 2007). The SRIs guide comprised a set of open-ended questions based on the specific instances of each participant's verbal and non-verbal L2 communication in the observed classrooms. While the data from class observations and diary entries were sampled for the interview by the researcher, the participants also paused and played the video at their free will to share their thoughts regarding their L2 communication in a particular episode (Gass & Mackey, 2000). Interviews were conducted in participants' mother tongue.

5.4. Data analysis

The data analysis was aimed at examining the complex nature of variations in participants' L2 WTC. The data from classroom observations, including observation sheets and video-recordings, were examined to identify variations and stability, including attractor and repeller states, in participants' L2 WTC. Since the observation scheme consisted of 5-min time intervals, it did not allow examination of within conversation variations. Therefore, the data from classroom video-recordings and SRIs were closely examined to identify instances of within-conversation variations in participants' L2 WTC. For instance, a participant's raising and dropping hand successively was also considered as an instance of during conversation variation (Bernales, 2016; Cao, 2009; MacIntyre et al., 1998). More specifically, participants' responses in SRIs also helped to reveal the moment-to-moment variations. The following example from Eshaal's SRI interview illustrates this.

> That time, I wanted to read my email. I didn't bother if everybody would laugh at it or something; rather it would give me a chance to correct my mistakes and write a mistake-free email the next time. But I did feel shy.

The example shows that the participant experienced lower anxiety and was willing to read out her email, but her shyness overcame her willingness. Second, the frequency of participants' L2 use was counted and checked on a series of time-intervals (i.e. 5, 10, 15, 20,...,60 min) within one class session (i.e. 60 min). Each participant's L2 WTC was tracked retrospectively to identify attractor and repeller states. For instance, a participant's L2 WTC was considered to be in an attractor state if it showed stability, that is either it increased or decreased consistently over time. Conversely, L2 WTC was perceived to be in a repeller state if it showed frequent shifts from one state to another, such as higher to lower and vice versa, on the same timescale. Similarly, participants' L2 WTC was checked between the 2 sessions of the same class, and over 14 classes using the data from classroom observations.

The data from SRIs were read iteratively using content analysis and constant comparison approach (Cohen, Manion, & Morrison, 2007) to identify facilitating and debilitating factors determining variations in participants' L2 WTC. In order to ensure the reliability of the data, some of the qualitative data were independently coded by a PhD colleague from Pakistan with an interrater reliability of .90 (Miles & Huberman, 1994). The factors underlying participants' L2 WTC were quantified in order to check the frequency of occurrence of each variable and its interaction with other variables. For instance, topic was frequently cited by participants as affecting L2 WTC. The data were, therefore, examined to check the number of its occurrences and the frequency of its interaction with other variables, such as anxiety and motivation. The qualitative data helped to understand the conglomerates underlying variations and attractor and repeller states. In the following paragraphs, we present the findings from cross-case analysis to demonstrate the variations and the underlying factors determining the variations in L2 WTC.

6. Findings

6.1. Variations within conversation

Participant's L2 WTC fluctuated within a conversation depending on the complex interaction of contextual, psychological and linguistic factors at a specific time. The content analysis of diaries and SRIs showed that variations within a conversation were determined by a complex interaction of variables, including interest in topic, behaviour of interlocutor(s), task type and (perceived) opportunity. However, the strength and configuration of factors affecting L2 WTC varied from participant to participant and from time to time. For instance, interaction between desire to talk to teacher or peer(s) and perceived opportunity was a strong determinant in Nawaz's L2 WTC, while situational motivation and task type exerted a powerful impact on Arham's L2 WTC. Arham's example below best illustrates the non-linear nature of variations in L2 WTC within conversation.

Arham's motivation to become a "good communicator" was the main attractor that inspired and influenced his communicational behaviour. In the 13th observed class, the teacher was commenting on the format, structure and organisation of students' assignments he had assigned in the previous class. Arham constantly raised and dropped his hand to ask for teacher's permission to read out his assignment. He explained this situation in the SRI-2 like this,

> I was raising hand again and again because I was motivated to read out my assignment. I was confident that my assignment was relatively better than that of friend's. However, I was getting scared that the teacher would find mistakes in my draft, and I knew there must be some mistakes in my assignment. But then I realised that if I did not dare to read out my letter, I might miss the opportunity that has arisen after long time.

The quote shows that Arham was motivated and willing to speak up (i.e. raising hand again and again) when he compared his letter with that of his friend (self-confidence). But fearing (anxiety) the teacher's (interlocutor) criticism, he lost his self-confidence for a while. However, he regained his willingness when he realised that this (perceived) opportunity for reading his letter might not arise again. Thus, Arham's L2 WTC experienced fluctuations due to a complex interaction of the underlying conglomerates, involving the task, motivation, the teacher, anxiety, self-confidence and perceived opportunity, before finally settling into an attractor state due to strong motivation.

6.2. Variations between two consecutive sessions of the same class

Moreover, participants' L2 WTC also fluctuated across two sessions (1-h each) of the same class. Sometimes, a participant's L2 WTC was higher in one session but lower in another session of the same class and vice versa. Abeeha's example below illustrates the nature of variations in L2 WTC between two sessions of the same class the same day. Abeeha was an enthusiastic and sensitive learner. According to her, she would not do MBA if her parents had not insisted on her. Nevertheless, she exhibited a remarkably talkative behaviour in the class participating in almost every classroom activity, including debates, role plays, group discussion and classroom presentations. However, her L2 WTC experienced a serious blow in the sixth observed class. In her diary-6, Abeeha reported that although she was feeling tired and sleepy, she was willing to talk because the topic of discussion was relevant to her own life experiences. However, her L2 WTC dropped significantly in the second session of the class due to a conglomeration of debilitating environmental factors, including the teacher's bad joke and a classmate's "idiotic comment". In the SRI-1 she noted,

> They said it in front of the whole class and everyone was laughing at me; I was feeling shattered. After that incident I was not even willing to attend the class but I kept sitting, my mind was completely blocked, I was not getting anything; the only thing that was running in my mind was that why sir said this to me. It hurt me very much; and after this class, I was seriously thinking that I should withdraw this subject (Business Communication).

Figures 1 and 2 present a comparison of Abeeha's L2 frequency in the two class sessions.

It can be noticed in the figures that despite instantaneous fluctuations in the session-1, Abeeha's L2 WTC was in an attractor state due to relevance of the topic. Nevertheless, in session-2, her L2 WTC made a qualitative transition into another attractor state due to a host of negative factors, including the teacher and the classmates' attitude that hurt Abeeha's emotions leading to dramatic drop in her motivation and willingness to talk.

Moreover, sometimes participants' L2 WTC kept moving in a series of repeller states. For instance, Meenoo was a confident and interactive student with higher trait-level L2 WTC. She was always eager to engage in classroom activities involving L2 use. Her L2 WTC underwent minute-to-minute fluctuations in the second observed class. Figures 3 and 4 facilitate a comparison of Meenoo's L2 WTC in the two sessions of the second observed class.

The observations data suggest that despite intermittent fluctuations, Meenoo's L2 WTC displayed relative stability in the first session of the class. Nevertheless, as the session progressed, her L2 WTC displayed fluctuations due to relevant and interesting topic, teacher's encouragement and content-based question–answer activity. She reported that she "enjoyed and learned from the debate on the topic 7 Cs". Similarly, in session-2 of the class, her L2 WTC underwent intermittent

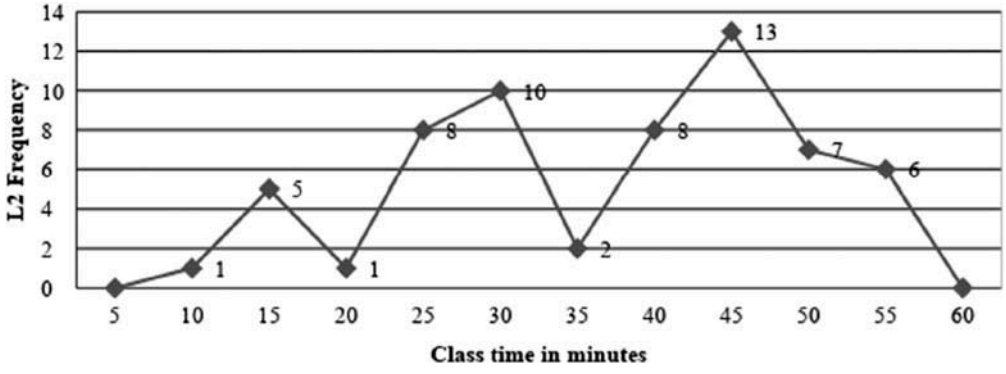


Figure 1. Abeeha's L2 frequency in session-1 of sixth class.

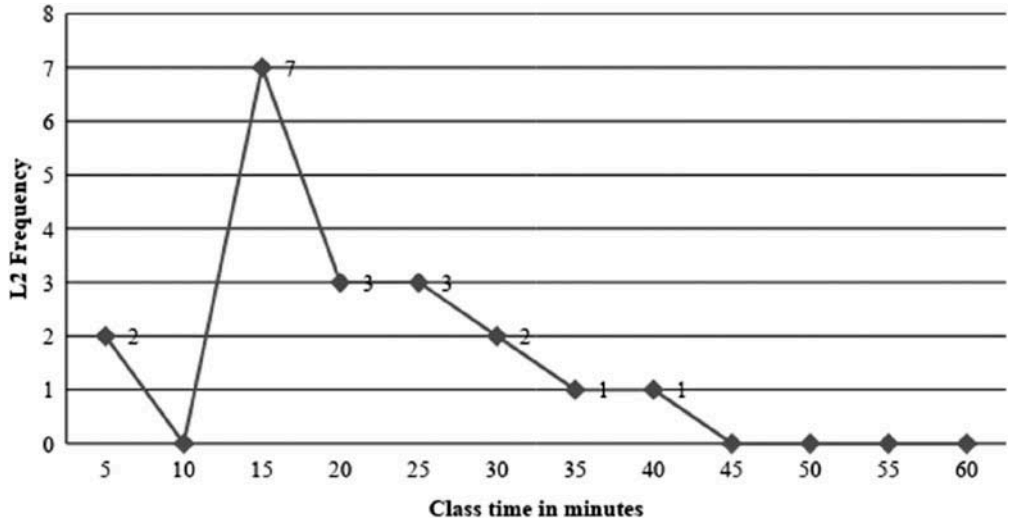


Figure 2. Abeeha's L2 frequency in session-2 of sixth class.

Figure 3. Meenoo's L2 WTC in session-1 of class-2.

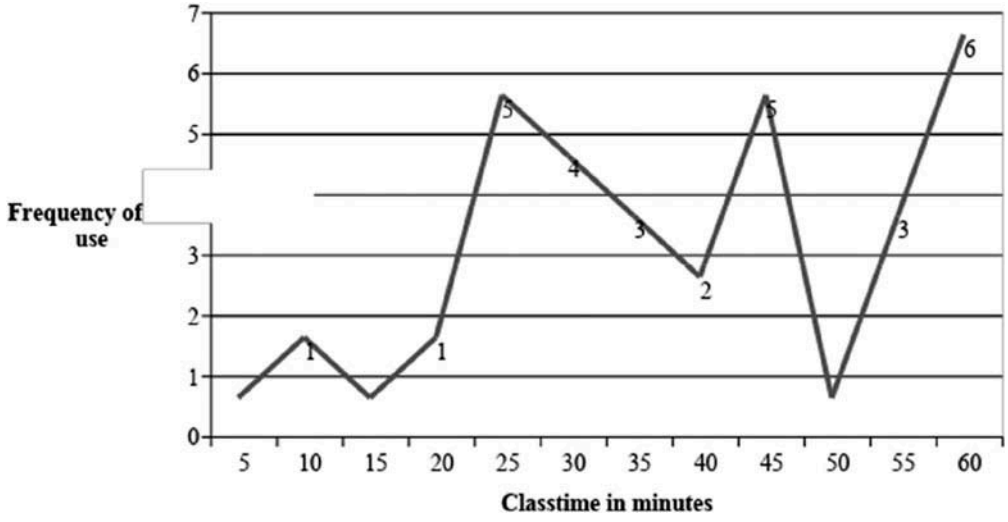
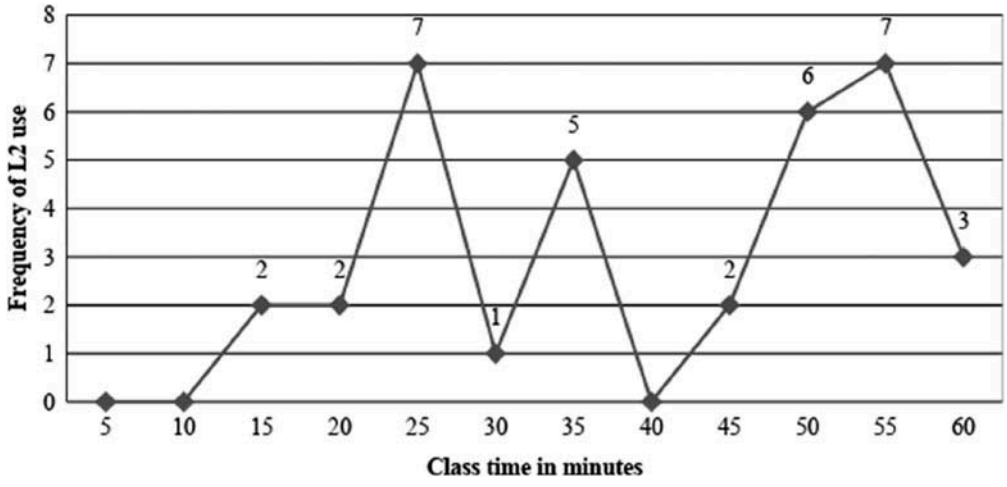


Figure 4. Meenoo's L2 WTC in session-2 of class-2.



minute-to-minute fluctuations due to a number of factors. According to her, the main factors driving her L2 WTC into repeller states included the nature of the activity, that is video-clip, whole-class teacher-fronted interactional pattern, lack of teacher's attention and lack of perceived opportunity.

6.3. Variations over 14 classes

Ebbs and flows in participants' L2 WTC across the 14 classes involved a series of meteoric rises and abysmal drops, enduring attractor states and bumpy repeller states. For instance, despite intermittent fluctuations, Eshaal and Meenoo showed a stable, upward trend in their L2 WTC over time, while Abeeha, Arham, Sherry and Nawaz showed a downward trend in their L2 WTC over time (see Figure 5).

The figure above explicitly illustrates the idiosyncratic development of participants' L2 WTC over time. While situational factors, such as topic, interlocutors, class atmosphere, motivation, anxiety and perceived opportunity also played important roles, the qualitative data suggest that participants' L2 WTC over 14 classes was strongly affected by various trait-like factors, such as personality and trait-like motivation. For instance, variations in Eshaal and Nawaz were strongly affected by personality, while a trait-like motivation had a strong impact on Arham, Abeeha, Meenoo and

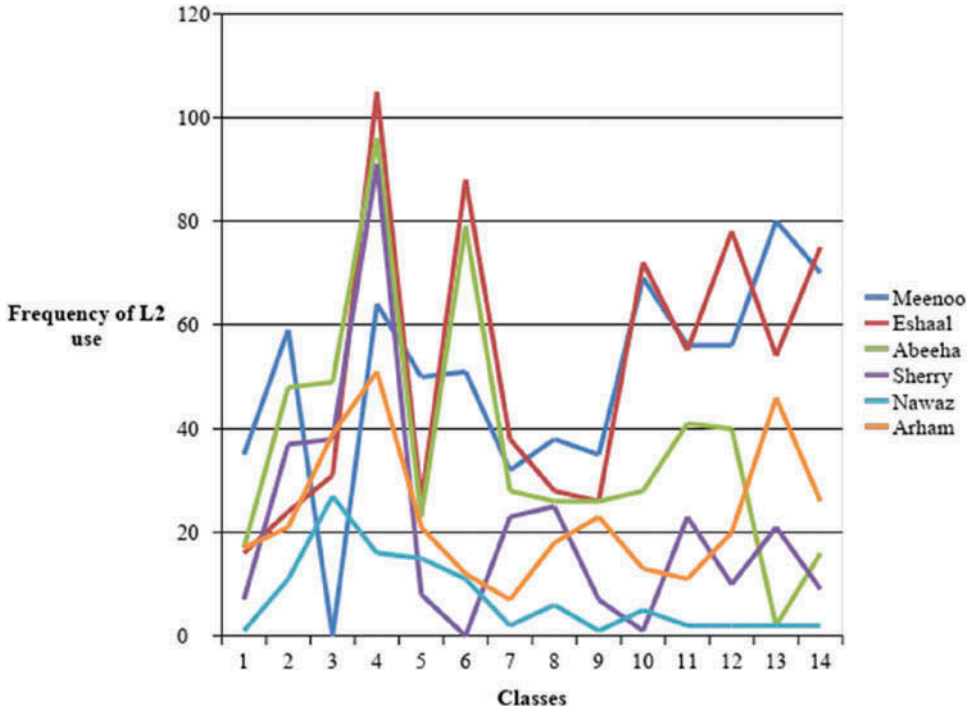


Figure 5. Trajectory of participants' L2 WTC over 14 classes.

Sherry. We use the data from two participants, namely Eshaal and Sherry, to exemplify the nature of variations in L2 WTC over 14 classes.

6.3.1. Eshaal's L2 WTC over 14 observed class

Eshaal's self-description of personality as "talkative and sociable" was in conformity with her proactive communication behaviour in the class all along the 14 classes. Instead of waiting for opportunities to be provided to her, she actively looked out for the opportunities to make use of L2. Compared to other participants of the present study, Eshaal displayed the higher frequency (n = 726) of L2 WTC across 14 observed classes. Figure 6 illustrates trajectory of Eshaal's L2 WTC over 14 classes.

The figure above illustrates both attractor and repeller states in the trajectory of Eshaal's L2 WTC over 14 classes. Eshaal demonstrated higher L2 WTC when her talkative personality was

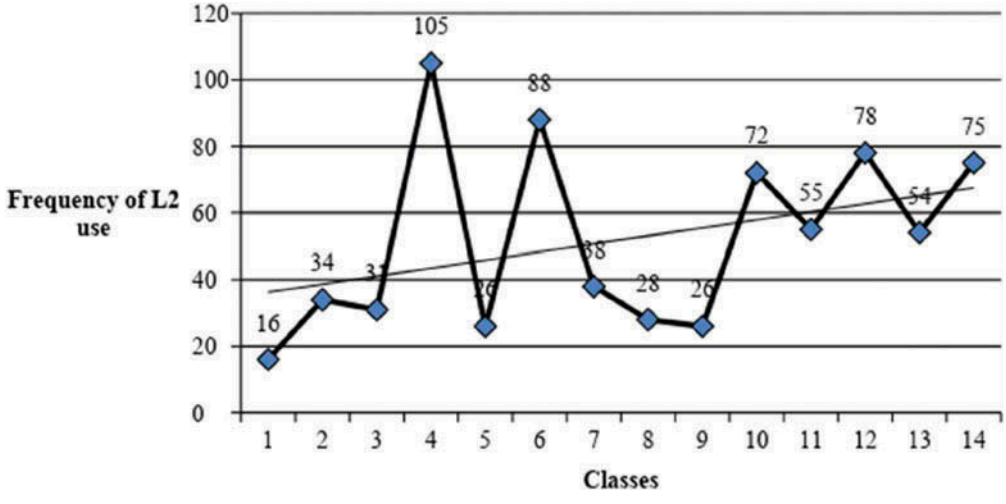


Figure 6. Variations in Eshaal's L2 WTC over 14 classes.

accompanied by a discussion-oriented lesson format, opportunities to talk and polite behaviour of the teacher. In the fourth class, for instance, she was not interested in the discussion initially because, in her own words, "the topics were quite boring", yet she displayed higher L2 WTC frequency (n = 105) in that class. Amongst other factors, such as polite behaviour of the teacher and stress-free classroom environment, she attributed her higher L2 WTC in that class to her "talkative nature".

In contrast, her talkative nature did not work well with lecture-based and presentations-oriented lesson formats. For instance, her L2 WTC showed stability between seventh and ninth classes due to lesson format mainly consisting of students' presentations. Students not doing presentations, including Eshaal, remained silent most of the time until invited by the teacher to offer comments. Thus, despite her talkativeness, Eshaal could accrue only a few opportunities to use L2.

During the last 5 classes, from 10th to 14th, Eshaal's L2 WTC made a qualitative shift from persistently lower to relatively higher frequency. The qualitative data show that she was not willing to talk in the last five classes because the classes consisted of teacher-talk and she was not interested in participating in writing activities due to her lack of perceived competence in written communication in English, the data from classroom observations, however, demonstrate that her L2 WTC was relatively higher between 10th and 14th classes. According to Eshaal, the factor which strongly explains the discrepancy between the self-report and actual communicational behaviour could be her extrovert personality. She reported, "my participation in these classes could be due to my talkative and sociable nature". Thus, despite a host of debilitating factors, her talkative nature enabled her to exploit the opportunities to make use of L2. To conclude, despite intermittent fluctuations, Eshaal's L2 WTC recorded an upward trend over the 14 classes mainly due to her extrovert personality.

6.3.2. Sherry's L2 WTC over 14 classes

Sherry was a highly competent and confident user of L2. He had been educated in private English medium schools and colleges and had also obtained a diploma in English language from a notable university of the country. His self-perceived communicative competence was so high that he considered himself to be excellent at all the four skills in English, including reading, listening, writing and speaking. It is important to note that while other participants opted to use code switching for doing the SRIs interviews, Sherry did all the three interviews in English. However, despite his higher proficiency and competence in English, his L2 WTC was predominantly affected by his silent nature, lack of motivation and opportunities to talk. According to him, he exploited fewer opportunities to talk in the class due to his lack of motivation. Interview data suggest that he did not prefer to "beg for opportunities to talk"; instead, he was motivated to talk when his participation was called for. He reported, "I like to talk when I am nominated". Most of his responses read as,

> I lost my interest for communication when I was not given the active chance.

This was also highlighted in the lower L2 WTC frequency (frequency = 302) across 14 classes. Figure 7 displays the trajectory of Sherry's L2 WTC over time.

Sometimes his lack of motivation was overpowered by his interest in topics relevant to his personal life. For example, fourth observed class witnessed Sherry's higher L2 WTC with higher number of occurrences (frequency = 91) of L2 use. He reported that he was interested in the topics of the discussion "because they were related to [his] experience". He also reported that his WTC dropped several times during the class because his peers interrupted him while he was struggling to get an opportunity. Sometimes he complained of losing opportunity due to the teacher not paying attention to him.

However, from the fifth class onwards, his L2 WTC dropped significantly to the extent that in some of the classes, he remained silent throughout the class (i.e. class 6) or made only few customary comments or using private speech to register his class participation (i.e. classes 9, 10, 12, 14). The reason for his lower L2 WTC between 7th and 9th classes was the presentation-based format of the classes, while his lower L2 WTC between 10th and 14th classes involved factors,

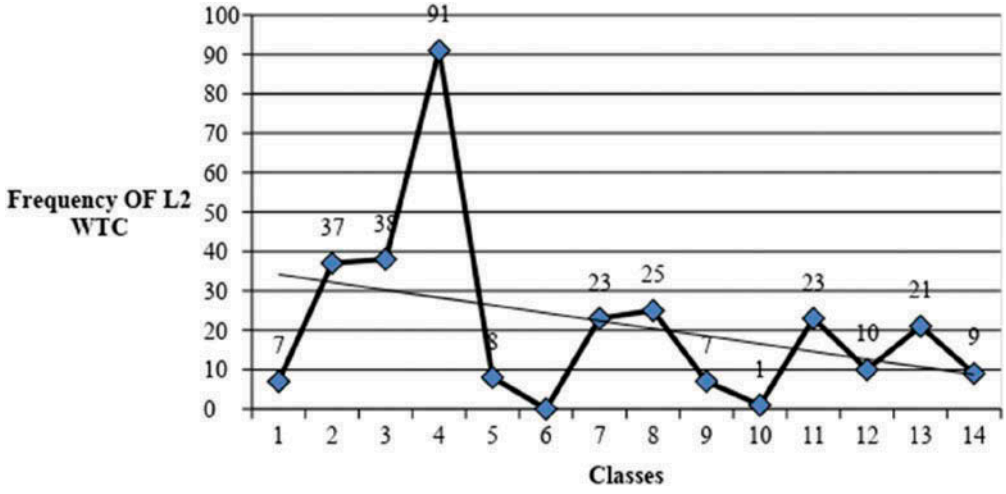


Figure 7. Variations in Sherry's L2 WTC over 14 classes.

including the lack of perceived opportunity and stressful or humorous class atmosphere. According to him, his avoidance of communication in a humorous class atmosphere was due to his fear of being made subject of his teacher's or peer's ridicule. Although trait-level motivation was the major factor, other situational factors that contributed negatively to his L2 WTC during these classes included sitting on backbenches, throat infection and attitude of his peers. Thus, despite intermittently moving between repeller and attractor states, the straight trend line in Figure 7 shows a gradual decline in Sherry's L2 WTC over time.

7. Discussion

The present study aimed to examine the complex nature of variations in postgraduate learners' L2 WTC on multiple timescales including within conversation, between class sessions and over 14 classes. Concerned mainly with states or long-term changes, only a few studies have taken account of the complex nature of variations in L2 WTC on multiple timescales (MacIntyre & Legatto, 2011; MacIntyre & Serroul, 2015; Peng, 2014). Using the DST perspective, the present study showed that variations in participants' L2 WTC were influenced simultaneously by both trait-like variables, including personality and trait-level motivation, and state-like variables, such as topic, interlocutors, task type and anxiety. More specifically, variations in participants' L2 WTC within conversation and between the two sessions of the same class were influenced mainly by state-like variables, including interest in and relevance of the topic, behaviour of the interlocutors, task type, state-like motivation and anxiety. Besides these, a number of other variables, such as toothache, headache, feeling sleepy, wearing a battered shirt, etc., also affected participants' L2 WTC; however, the frequency of such factors was lower than the ones mentioned earlier (Kang, 2005).

Variations in L2 WTC across 14 classes were strongly influenced by trait-like variables, such as type of personality (e.g. extrovert, introvert), trait-level motivation and lesson format (e.g. lecture-based, presentations-oriented or open discussion). Extraverted learners showed higher L2 WTC in the class, while introverted students displayed lower L2 WTC. For example, while Eshaal's talkative personality served as a strong factor enabling her to exploit opportunities to use L2, the silent nature of Nawaz and Sherry required more wait time in order to make use of the opportunities involving L2 use. While the study generally agrees with Dewaele and Furnham (1999) that extraverts, that is Eshaal, showed lower anxiety and higher fluency than their introverted counterparts, that is Nawaz, there was, however, one exception, that is Abeeha, who despite her extraverted personality experienced higher anxiety due to lack of trait-level motivation, behaviour of interlocutors and self-perceived competence.

Similarly, higher or lower trait-like motivation, both instrumental and integrative, determined change in L2 WTC over a long time. While higher integrative motivation inspired Arham to do a number of classroom presentations, lower instrumental motivation, along with lack of perceived opportunity, prevented Sherry from actively seeking opportunities. Furthermore, in contrast to previous research (MacIntyre, Burns, & Jessome, 2011; MacIntyre & Legatto, 2011), higher L2 proficiency did not exert strong influence on L2 WTC. One of the possible explanations could be the advanced level of students, their long L2 learning experience and the exclusive focus on the content rather than language per se. Most importantly, contrary to MacIntyre et al.'s (2001) claim that L2 WTC inside the classroom strongly corresponds to the L2 WTC outside the classroom, the current study shows that learners L2 WTC inside the classroom does not necessarily correspond to the L2 WTC outside the classroom. For example, compared to his L2 WTC inside the classroom, Sherry exhibited a significantly higher L2 WTC during the StR interviews outside the classroom. Thus, learner's L2 WTC demonstrated individualistic behaviour and adhered to individual trajectories not simply reducible to group averages. This also finds resonance with some of the previous studies (MacIntyre & Legatto, 2011; Peng, 2014; Shimoyama, 2013).

Most interestingly, the eventual outcome of an interaction of factors was determined by relative strength of each variable at a specific moment. Sometimes a state-like variable, such as behaviour of interlocutors, drove learners' L2 WTC into a strong attractor state. For instance, despite her being an extravert, Abeeha's L2 WTC suffered a heavy blow due to her interlocutors' behaviour never to recover from the attractor state. The study also showed that variations in learners' L2 WTC within conversation or between the two class sessions were not predictable due to the non-linear nature of interaction of variables. However, L2 WTC can be predicted by following the specific patterns of learners' communication retrospectively overtime (Dornyei, 2014; Pawlak, Mystkowska-Wiertelak, & Bielak, 2015).

Lastly, previous research on L2 WTC conceived of stability as stasis, meaning a period of complete inactivity (MacIntyre et al., 2001; MacIntyre & Charos, 1996). Using DST, the present study has shown that stability does not mean absence of variations; instead, variability and stability in L2 WTC exist concurrently rather than in succession. For instance, while participants' L2 WTC exhibited instant fluctuations within a conversation, it showed relative stability on other timescales, including within and between class sessions and over 14 classes. Similarly, L2 WTC was in flux while being in an attractor state. Thus, based on the evidence from the present study, the process of the development of learners' L2 WTC can be described as variable stability and stable variability.

8. Pedagogical implications and conclusion

Based on its findings, the present study proposes that ES/FL teachers need to take account of learners' personality profiles and the idiosyncratic nature of variations and their underlying factors while designing materials, planning the lessons and evaluating learners' oral performance in the target language. While it is not advisable for teachers to attempt to change learners' personalities, they may, however, employ "individualisation, awareness-raising and application of varied activities to cater for learners" different personality traits and encouraging learners to perform tasks that may not be fully compatible with their personality profiles' (Biedron & Pawlak, 2016).

More specifically, the teachers might consider planning lessons involving (1) small group or pair work activities which might allow quiet-natured, introverted learners enough time to formulate their responses, get scaffolded help and make frequent use of L2, and (2) designing whole-class activities, such as debates, role plays and presentations for talkative, extroverted students (Dornyei & Murphy, 2003). Similarly, teachers need to engage with and encourage participation from quiet students who are willing but prefer to wait for teacher's call. Furthermore, research in various contexts has shown that kind words, passing a smile, making eye-contact and extending emotional support to have a strongly positive impact on students'

L2 WTC (Allen, Witt, & Wheeless, 2006; Barlozek, 2013; Wen & Clement, 2003). In the context of the current study, showing verbal and non-verbal immediacy, that is perceived physical and psychological proximity (Richmond, 2002) on the part of a teacher, can boost L2 WTC of less motivated learners.

In order to achieve this, it is necessary to raise teachers' awareness by providing them with proper pre- and in-service training into dealing with the dynamic and individualistic nature of learners' WTC. More specifically, teachers need to be trained into (1) keeping track of variations in learners' L2 WTC on multiple timescales, that is within a conversation, within and between the classes and over a longer period, and (2) devising strategies, including activity-based lesson plans and teacher immediacy, to deal with random, individualistic variability in L2 WTC of learners. The study, however, acknowledges that while a dynamic perspective on classroom teaching is rewarding, it complexifies teachers' job and makes overwhelming demands on their time. Research has shown that ES/FL teachers face enormous institutional pressure due to heavier workload, large classes and exam-oriented pedagogy (Akhtar, 2013; Shamim, 1996; Tsui, 1996). In addition, lack of continuous professional development programmes, unavailability of resources for teacher training and the proper qualifications of teacher educators make the matters even worse (National Education Policy of Pakistan, 2017). Thus, before expecting the teachers to account for the sensitivities of learners' L2 WTC, teachers' sensitivities must also be accounted for by addressing their specific concerns (Barlozek, 2013). The study, therefore, reinforces the need for institutional reforms ensuring moderate workload, smaller classes, inquiry-based learning, better incentives and quality teacher-education programmes.

9. Conclusion

The study investigated variations in postgraduate learners' L2 WTC on 3 timescales, within conversation, between 2 class sessions and over 14 classes. The findings showed that advanced-level learners' L2 WTC undergoes fluctuations due to both trait-like and state-like variables. While learners' personality and trait-like motivation served as attractors exerting strong influence on long-term fluctuations, the topic, task, interlocutors, anxiety and state-like motivation affected variations on a short-term, within conversation and between consecutive sessions of the same class. However, due to the interconnectedness and non-linear interaction, the behaviour of variables affecting L2 WTC was not predictable. Since the current study aimed at an in-depth and holistic understanding of the nature of variations in six postgraduate learners' L2 WTC, the findings of the study are not generalisable to other contexts. However, the current study offers important pedagogical insights into the nature of advanced-level learners' L2 WTC as well as a number of implications for both language teachers and teacher education programs. Also, while the current study examined learners' L2 WTC in BC class, future studies may examine L2 WTC in other content-oriented classrooms, that is marketing and economics, to obtain a deeper understanding of the nature of L2 WTC.

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Appendix A: Classroom observation sheet

Whole-class teacher–student/student–student interaction

		Meenoo												Abeeha											
Class time (in minutes)	Volunteer an answer	Volunteer a comment	Ask a question	Ask for clarification	Present opinion	Respond to opinion	Volunteer to participate in activity	Talk to neighbour	Private speech	Volunteer an answer	Volunteer a comment	Ask a question	Ask for clarification	Present opinion	Respond opinion	Volunteer to participate in activity	Talk to neighbour	Private speech							
0–5																									
6–10																									
11–15																									
16–20																									
21–25																									
26–30																									
31–35																									
36–40																									
41–45																									
46–50																									
51–55																									
56–60																									

		Class time (in minutes)	0–5	6–10	11–15	16–20	21–25	26–30	31–35	36–40	41–45	46–50	51–55	56–60
Whole-class teacher–student/student–student interaction	**Eshaal**	Volunteer an answer												
		Volunteer a comment												
		Ask a question												
		Ask for clarification												
		Present opinion												
		Respond opinion												
		Volunteer to participate in activity												
		Talk to neighbour												
		Private speech												
	Sherry	Volunteer an answer												
		Volunteer a comment												
		Ask a question												
		Ask for clarification												
		Present opinion												
		Respond opinion												
		Volunteer to participate in activity												
		Talk to neighbour												
		Private speech												

		Class time (in minutes)	0–5	6–10	11–15	16–20	21–25	26–30	31–35	36–40	41–45	46–50	51–55	56–60
Whole-class teacher–student/student–student interaction	Nawaz	Volunteer an answer												
		Volunteer a comment												
		Ask a question												
		Ask for clarification												
		Present opinion												
		Respond opinion												
		Volunteer to participate in activity												
		Talk to neighbour												
		Private speech												
	Arham	Volunteer an answer												
		Volunteer a comment												
		Ask a question												
		Ask for clarification												
		Present opinion												
		Respond opinion												
		Volunteer to participate in activity												
		Talk to neighbour												
		Private speech												

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